

Response

Applicant: VanWinkle T. Townsend

Serial No.: 09/847,751

Filed: May 2, 2001

Docket No.: FE-00494

Title: TELEMETRY SYSTEM AND METHOD FOR ACOUSTIC ARRAYS

REMARKS

This Response is responsive to the Office Action mailed January 16, 2004. In that Office Action, the Examiner rejected claims 12-15, 19-21, and 25 under 35 U.S.C. §102(b) as being anticipated by Sonderegger et al., U.S. Patent No. 5,796,504 ("Sonderegger"). Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Nelson et al., U.S. Patent No. 4,628,493 ("Nelson") in view of Darcie et al., U.S. Patent No. 5,815,295 ("Darcie"). Claims 1-11, 16-18, 22-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sonderegger in view of Nelson.

With this Response, Applicant respectfully traverses the Examiner's rejection of claims 1-25. Claims 1-25 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. §102

The Examiner rejected claims 12-15, 19-21, and 25 under 35 U.S.C. §102(b) as being anticipated by Sonderegger et al., U.S. Patent No. 5,796,504 ("Sonderegger"). Independent claim 12 recites an "optical source for generating a stream of optical pulses," and recites the phrase "stream(s) of optical pulses" in numerous locations throughout the claim. Independent claim 20 recites "remotely generating a plurality of streams of optical pulses," and recites the phrase "stream(s) of optical pulses" in numerous locations throughout the claim. In contrast, Sonderegger discloses that the lasers 24 supply "continuous wave (CW) unmodulated light" (Sonderegger at col. 4, lines 19-21). Sonderegger does not teach or suggest generating a stream of optical pulses as recited in claims 12 and 20, nor does Sonderegger teach or suggest the other elements in claim 12 or claim 20 that involve a stream of optical pulses.

In view of the above, Sonderegger does not teach or suggest each and every limitation of independent claim 12 or independent claim 20. The Applicant respectfully traverses the rejection of claims 12 and 20, requests removal of the rejection of claims 12 and 20 under 35 U.S.C. § 102(b), and requests allowance of these claims. Since dependent claims 13-15, 19, 21,

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and 25 further limit patentably distinct claim 12 or claim 20, these dependent claims are believed to be allowable over the cited reference.

In addition, dependent claims 13-15, 19, 21, and 25 are further distinguishable over Sonderegger. For example, dependent claim 19 recites "wherein each optical modulator modulates the received stream of optical pulses by passing and blocking optical pulses in the received stream." Dependent claim 25 recites "wherein each of the received streams of optical pulses is modulated by passing and blocking optical pulses in the received streams." Sonderegger does not teach or suggest generating a stream of optical pulses, let alone modulating a stream of optical pulses by passing and blocking optical pulses in the received stream(s) as recited in claims 19 and 25. The Examiner stated that "[r]egarding claims 19 and 25, Sonderegger discloses each optical modulator modulates the received stream of optical pulses by passing and blocking optical pulses in the received stream (e.g., by varying the voltage so as to keep the modulator in linear portion of its transfer function, Col. 5, line 55-Col. 6, line 37)." (Office Action at para. no. 2, page 3). The portion of Sonderegger cited by the Examiner does not teach or suggest modulating a stream of optical pulses by passing and blocking optical pulses.

In view of the above, dependent claims 13-15, 19, 21, and 25 are not taught or suggested by Sonderegger. The Applicant respectfully traverses the rejection of claims 13-15, 19, 21, and 25, and reconsideration and allowance of claims 13-15, 19, 21, and 25 is respectfully requested.

Claim Rejections under 35 U.S.C. §103

The Examiner rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Nelson et al., U.S. Patent No. 4,628,493 ("Nelson") in view of Darcie et al., U.S. Patent No. 5,815,295 ("Darcie"). The Examiner acknowledged that Nelson does not teach or suggest numerous limitations of claim 1:

He [Nelson] does not disclose a first optical splitter; a first optical transmitter for transmitting a first set of optical pulses to the first optical splitter, the first optical splitter configured to transmit the first set of optical pulses to each subsystem in the first plurality of subsystems, each subsystem in the first plurality of subsystems configured to modulate the first set of optical pulses based on the generated digital values and thereby generate a modulated optical pulse stream; a

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first optical combiner for receiving and combining the modulated optical pulse stream from each subsystem in the first plurality of subsystems, thereby generating a combined modulated optical pulse stream; and a first optical receiver for receiving the combined modulated optical pulse stream from the first optical combiner, the first optical receiver configured to generate electrical signals based on the received combined modulated optical pulse stream. (Office Action at para. no. 4, page 4).

The Examiner indicated that Darcie discloses these limitations. (Office Action at para. no. 4, page 5). The Examiner has not established a *prima facie* case of obviousness of claim 1 because Darcie is not analogous art, and there is no suggestion to combine the references in the manner proposed by the Examiner.

Darcie is not analogous art. Darcie is not in the field of endeavor of the present invention, nor is Darcie reasonably pertinent to the particular problem with which the invention was concerned. See, MPEP § 2141.01(a). The Field of the Invention section of the present application states that “[t]his invention relates generally to telemetry systems.” (Specification at page 1, line 9). The specification also states that:

The word “telemetry” generally refers to communications systems that make measurements at remote or inaccessible points, and transmit these measurements to receiving equipment where they are monitored, recorded, and displayed. Telemetric systems typically include one or more measuring/transmitting instruments, a medium of transmission, a receiver, and recording and/or display equipment. The measuring/transmitting instrument is usually a transducer, which converts physical stimuli into electrical signals.

...

It would be desirable to provide a high bandwidth telemetry system at a low cost, with less complexity, fewer hull penetrations, less power consumption, and better reliability than existing systems, and that is extendible to large acoustic arrays. (Specification at page 1, lines 14-20).

Claims 1-11 of the present application are directed to a “telemetry system,” claims 12-19 are directed to “a system for remotely retrieving data from an array of sensors,” and claims 20-25 are directed to “a method for remotely retrieving data from an array of sensors”.

In contrast, Darcie discloses a communication system that is part of a telecommunications network. (See, e.g., Darcie at Figure 1 and corresponding description).

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Darcie discloses that the system can provide digital telephone service, data services between subscriber terminal equipment and a computer, or video or multimedia services. (See, e.g., Darcie at col. 4, lines 35-50). Darcie does not include any teaching or suggestion regarding telemetry. Darcie is not in the field of telemetry, and Darcie is not reasonably pertinent to the problems addressed by the present invention.

There is also no suggestion to combine Nelson and Darcie as proposed by the Examiner. The Federal Circuit has stated, “[i]n holding an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention.” *Karsten Manufacturing Corp. v. Cleveland Golf Co.*, 58 U.S.P.Q.2d 1286, 1293 (CAFC 2001). The Examiner stated that:

Accordingly, one of the ordinary would have been motivated to employ the above means for providing a simple data connection between terminal equipment and a computer system or the provisioning of video or multimedia services (col. 4, lines 44-48). Therefore, it would have been obvious to one of artisan from the same endeavor at the time the invention was made to modify the sensor system with time division multiplexing telemetry of Nelson by incorporating the above means because this provides a simple data connection between terminal equipment and a computer system or the provisioning of video or multimedia services as taught by Darcie. (Office Action at para. no. 4, page 5).

The Examiner has not indicated why one of ordinary skill in the art would have been motivated to incorporate a system for providing video or multimedia services, such as that disclosed in Darcie, into an array of hydrophones that is towed behind a boat and detects seismic signals, such as that disclosed in Nelson. There is no suggestion in Nelson that such a system could or should be incorporated into the array, nor is there any suggestion in Darcie that the system for providing video or multimedia services could or should be incorporated into an array of hydrophones for detecting seismic signals. There is no suggestion in Nelson or Darcie to combine the cited references in any way, let alone in a way that would produce the claimed invention.

The proposed modification to Nelson would also change the principle of operation disclosed in Nelson, as well as require a substantial reconstruction and redesign of the system

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disclosed in Nelson. The MPEP states that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP § 2143.01, citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The MPEP also states that, in the *Ratti* case, “[t]he court reversed the rejection holding the ‘suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.’” MPEP § 2143.01, citing *In re Ratti*, 270 F.2d at 813, 123 USPQ at 352.

In view of the above, independent claim 1 is not taught or suggested by Nelson and Darcie. The Applicant respectfully traverses the rejection of claim 1, and reconsideration and allowance of claim 1 is respectfully requested.

The Examiner rejected claims 1-11, 16-18, and 22-24 under 35 U.S.C. §103(a) as being unpatentable over Sonderegger in view of Nelson. Independent claim 1 recites an “optical transmitter for transmitting a first set of optical pulses to the first optical splitter” and recites the phrases “set of optical pulses” and “optical pulse stream” in numerous locations throughout the claim. In contrast, as discussed above with reference to independent claims 12 and 20, Sonderegger discloses that the lasers 24 supply “continuous wave (CW) unmodulated light” (Sonderegger at col. 4, lines 19-21). Sonderegger does not teach or suggest transmitting a set of optical pulses as recited in claim 1, nor does Sonderegger teach or suggest the other elements in claim 1 that involve a set of optical pulses or an optical pulse stream. The Examiner has acknowledged that Nelson also does not teach or suggest these limitations of claim 1. (See, e.g., Office Action at para. no. 4, page 4, stating, *inter alia*, “[h]e [Nelson] does not disclose a first optical splitter; a first optical transmitter for transmitting a first set of optical pulses to the first optical splitter”). In addition, there is no suggestion to combine Sonderegger and Nelson as proposed by the Examiner.

In view of the above, independent claim 1 is not taught or suggested by Sonderegger and Nelson, either alone, or in combination. The Applicant respectfully traverses the rejection of claim 1, and reconsideration and allowance of claim 1 is respectfully requested. Since dependent

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claims 2-11, 16-18, and 22-24 further limit patentably distinct claim 1, 12, or 20, these dependent claims are believed to be allowable over the cited references.

In addition, dependent claims 2-11, 16-18, and 22-24 are further distinguishable over Sonderegger and Nelson. For example, dependent claims 6 and 7 recite that “the combined modulated optical pulse stream is in a time division multiplexed format.” Claims 17, 18, 23, and 24 recite that “the combined modulated stream of optical pulses is in a time division multiplexed format.” There is no teaching or suggestion in Sonderegger regarding optical pulses, or time division multiplexing of optical pulses. The Examiner has acknowledged that “[h]e [Nelson] does not disclose . . . a first optical combiner for receiving and combining the modulated optical pulse stream from each subsystem in the first plurality of subsystems, thereby generating a combined modulated optical pulse stream.” (Office Action at para. no. 4, page 4). Since Nelson does not teach or suggest a combiner that receives a modulated pulse stream from each subsystem and generates a combined modulated optical pulse stream, it follows that Nelson also does not teach or suggest the further limitation that the combined modulated optical pulse stream is in a time division multiplexed format.

Claim 9 recites that “wherein each optical modulator modulates the first set of optical pulses by passing and blocking optical pulses in the first set of optical pulses.” As described above with respect to claims 19 and 25, Sonderegger does not teach or suggest modulating a stream of optical pulses by passing and blocking the optical pulses. Likewise, there is no teaching or suggestion in Nelson regarding modulating a set of optical pulses by passing and blocking the optical pulses.

In view of the above, dependent claims 2-11, 16-18, and 22-24 are not taught or suggested by Sonderegger and Nelson, either alone, or in combination. The Applicant respectfully traverses the rejection of claims 2-11, 16-18, and 22-24, and reconsideration and allowance of claims 2-11, 16-18, and 22-24 is respectfully requested.

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In light of the above, Applicant believes independent claims 1, 12, and 20, and the claims depending therefrom, are in condition for allowance. Allowance of these claims is respectfully requested.

CONCLUSION

It is believed that all claims are now in a condition for allowance. Notice to that effect is respectfully requested.

No fees are required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 500471.

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this response.

Respectfully submitted,

VanWinkle T. Townsend,

By his attorneys,

DICKE, BILLIG & CZAJA, PLLC

Fifth Street Towers, Suite 2250

100 South Fifth Street

Minneapolis, MN 55402

Telephone: (612) 573-0178

Facsimile: (612) 573-2005

Date: 3/30/04

JAH:jmc

Jeff A. Holmen
Jeff A. Holmen
Reg. No. 38,492

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of March, 2004.

By Jeff A. Holmen
Name: Jeff A. Holmen